

The Effect of Functional Resistance Training on the Resting Metabolic Rate of Apparently Healthy Adult Women

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Recent Centers for Disease Control and Prevention (2012) data indicates that 35.7% of adults over eighteen are overweight or obese. Total daily energy expenditure significantly impacts obesity level, and the resting metabolic rate (RMR) accounts for approximately 60% of the total daily energy expenditure (Levine, 2005). **PURPOSE:** This study examined the effects of resistance training on the RMR in apparently healthy adult women ($n=20$), and examined the effects of age and body mass index (BMI) on the amount of change. **METHODS:** Participants in this study were females between 35 and 60 years of age, and had a BMI between 18.5kg/m² and 39.9kg/m². All participants had body composition and RMR examined before and after a 6 week resistance training program to determine if any changes had resulted from the training. Changes in absolute and relative RMR were compared by age group (35-50 and 51-60) and BMI category (18.5-24.9 kg/m², 25-29.9 kg/m², and 30-39.9 kg/m²). **RESULTS:** Results indicated a significant increase in absolute (862.6797kcal/day to 1099.1716 kcal/day), and relative (12.0358 kcal/kg/day to 15.4962 kcal/kg/day) RMR in the sample. No statistically significant differences were found when comparing amount of change across age or BMI category. **CONCLUSION:** Literature suggests that RMR is significantly related to lean body mass. This study supports that hypothesis, and suggests that 6 weeks of resistance training is adequate to elicit an increase in RMR in healthy adult women. A possible mechanism explaining this effect is an increase in neuromuscular recruitment with the initiation of resistance exercise. More research is needed to examine this mechanism; and to determine the effects of age, body composition, and different styles of training on this change.